

We Claim:

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1. In an electronic device interfaced with a display surface, a method, comprising the steps of:
 - providing two electronic diagrams, said electronic diagrams having blocks representing components of a system;
 - determining corresponding features of said electronic diagrams that are present in both of said electronic diagrams;
 - determining differences between said electronic diagrams; and
 - 10 programmatically merging differences copied from a selected one of said two electronic diagrams into the other of said electronic diagrams at a corresponding location in said other electronic diagram.
 - 15 2. The method of claim 1 wherein said programmatically merging differences comprises the further step of:
 - replacing data elements of said other electronic diagram with copied differences from said selected one of said two electronic diagrams.
 - 20 3. The method of claim 2, comprising the further step of:
 - cascading hierarchically the replacement of data elements wherein said data elements being replaced are arranged in a tree structure, said tree structure having parent data elements with child data elements attached thereto, said child data elements being replaced when said parent data element is replaced.
 - 25 4. The method of claim 3 wherein only said child data elements are replaced.
 5. The method of claim 1, comprising the further steps of:
 - categorizing said differences between said two electronic diagrams as functional differences and graphical differences, said functional differences controlling the
 - 30 performance of a system represented by said electronic diagram, said graphical differences affecting the appearance of said electronic diagram displayed to a user;

copying all of said functional differences from said selected one of said two electronic diagrams;

copying less than all of said graphical differences from said selected one of said two electronic diagrams; and

- 5 inserting the copied functional differences and graphical differences into corresponding sections of said other electronic diagram, said copied functional and graphical differences being inserted in the corresponding section of said other electronic diagram.

- 10 6. The method of claim 5, comprising the further steps of:

 cascading hierarchically the replacement of data elements in said other electronic diagram wherein said data elements being replaced are arranged in a tree structure, said tree structure having parent data elements with child data elements attached thereto, said child data elements in said other electronic diagram being replaced when said
15 parent data element is replaced.

7. The method of claim 5, comprising the further steps of:

 cascading hierarchically the replacement of data elements in said other electronic diagram, wherein said data elements being replaced are arranged in a tree structure, said
20 tree structure having parent data elements with child data elements attached thereto, said child data elements of corresponding parent data elements in said two electronic diagrams being replaced without replacing the corresponding parent data element.

8. The method of claim 1, comprising the further steps of:

25 highlighting the differences in said electronic diagrams for a user on a display surface of a display device, said display surface showing both of said diagrams; and
 updating said display surface following the performance of said merging operation, said updating showing the differences copied to said other electronic diagram.

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of claim 8, comprising the further steps of:
 ing a distance on said display surface from an e
 tion point for a block in said electronic diagram,
 connection point of a line and a block following
 ing said distance to a pre-defined parameter, said
 value;
 g said displayed arrowed line to said updated co
 less than said pre-defined parameter.

l of claim 9, comprising the further step of:
 g said line with a new line drawn to said updated
 at least as large as said pre-defined parameter.

l of claim 1, comprising the further steps of:
 g said differences in said electronic diagrams on
 said display surface split to show both of said ele
 ting a difference item in said selected one of said
 ting a difference item in said other electronic dia
 highlighted difference in said selected one of said
 g the highlighted difference item in said other ele
 ighlighted difference item from said selected one o

l of claim 11 comprising the further step of:
 g a data element in a highlighted difference item
 data element being a child data element in said oth
 at being part of a tree structure, said tree structur
 child data elements attached thereto.

determining a distance on said display surface from an endpoint of a line to an updated connection point for a block in said electronic diagram, said updated connection point being the connection point of a line and a block following a merge operation;

5 comparing said distance to a pre-defined parameter, said pre-defined parameter
being a distance value;

extending said displayed arrowed line to said updated connection point when said distance is less than said pre-defined parameter.

10 10. The method of claim 9, comprising the further step of:

replacing said line with a new line drawn to said updated connection point when said distance is at least as large as said pre-defined parameter.

11. The method of claim 1, comprising the further steps of:

15 presenting said differences in said electronic diagrams on a display surface of a
display device, said display surface split to show both of said electronic diagrams;

highlighting a difference item in said selected one of said two electronic diagrams;

highlighting a difference item in said other electronic diagram that corresponds
20 to the matching highlighted difference in said selected one of said two electronic
diagrams; and

replacing the highlighted difference item in said other electronic diagram with a copy of the highlighted difference item from said selected one of said two electronic diagrams.

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12. The method of claim 11 comprising the further step of:

replacing a data element in a highlighted difference item in said other electronic diagram, said data element being a child data element in said other electronic diagram, said data element being part of a tree structure, said tree structure having parent data elements with child data elements attached thereto.

13. The method of claim 1, wherein said two electronic diagrams are at least one of block diagrams, state diagrams, signal diagrams, flow chart diagrams, sequence diagrams, UML diagrams, dataflow diagrams, circuit diagrams, ladder logic diagrams and Kinimatic element diagrams.

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14. The method of claim 1, wherein said electronic diagrams depict multiple domains

15. In an electronic device, a method, comprising the steps of:

providing two state diagrams of a system, said state diagrams having blocks
10 joined with lines, each of said blocks representing states in a system, said lines representing transitions between said states, said transitions taking place upon the occurrence of a specified event;

determining corresponding features of said state diagrams that are present in both of said state diagrams;

15 determining differences between said state diagrams, said differences being recorded as a list of data elements; and

merging differences from a selected one of said state diagrams into the other of said state diagrams, said merging copying said differences from the selected one of said state diagrams and inserting said differences in said other state diagram.

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16. The method of claim 15 wherein said merging differences comprises the further steps of:

replacing data elements of said other state diagram with copied differences of data elements from said selected one of said state diagrams.

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17. The method of claim 15, comprising the further steps of:

categorizing said corresponding features as functional features and graphical features, said functional features controlling the performance of the system represented by said state diagram, said graphical features affecting the appearance of said state
30 diagram displayed to a user;

determining differences in said functional features and said graphical features of said state diagrams;

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copying less than all of said graphical differences from said other electronic diagram; and

inserting the copied functional differences and graphical differences into corresponding sections of said other electronic diagram, said copied graphical and functional differences replacing data elements in the corresponding section of said other electronic diagram.

20. In an electronic device interfaced with a display surface, a medium holding computer-executable instructions for a method, said method comprising the steps of:

10 providing two electronic diagrams, said electronic diagrams having blocks representing components of a system, said blocks connected by lines;

determining corresponding features of said electronic diagrams that are present in both of said electronic diagrams;

determining differences between said electronic diagrams; and

15 programmatically merging differences copied from a selected one of said two electronic diagrams into the other of said electronic diagrams at a corresponding location in said other electronic diagram.

21. The medium of claim 20 wherein the step of merging differences in said method

20 comprises the further step of:

replacing data elements of said other electronic diagram with copied differences from said selected one of said two electronic diagrams.

22. The medium of claim 20 wherein said method comprises the further step of:

25 categorizing said differences between said two electronic diagrams as functional differences and graphical differences, said functional differences controlling the performance of a system represented by said electronic diagram, said graphical differences affecting the appearance of said electronic diagram displayed to a user;

copying all of said functional differences from said selected one of said two

30 electronic diagrams;

copying less than all of said graphical differences from said selected one of said two electronic diagrams; and

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inserting the copied functional differences and graphical differences into corresponding sections of said other electronic diagram, said copied functional and graphical differences being inserted in the corresponding section of said other electronic diagram.

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23. The medium of claim 20 wherein said method comprises the additional steps of:
determining differences in at least one additional electronic diagram; and
merging said differences from at least one additional electronic diagram into said electronic diagrams.

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24. The medium of claim 20 wherein said method comprises the additional steps of:
determining differences in at least one additional electronic diagram; and
merging said differences from at least one additional electronic diagram into a single electronic diagram, said diagram being stored in a configuration management
15 system.

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